

The Democratization of America's Capital Markets

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T*his article focuses on two implications of the democratization of U.S. capital markets: the possible impact of more households being exposed to stock market swings and the possible increased sensitivity of small and expanding businesses to fluctuations in securities markets.*

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Since the early 1980s, financial innovations have benefited the United States by increasing the availability of financing for new firms and improving Americans' access to financial investments. Some innovations, such as the development of the venture capital market, arose from deregulation and efforts to find new ways of financing small firms, whose risk profiles made traditional financial sources less appropriate. By making capital more available, these financial-side innovations have enabled such firms to take advantage of new technologies by developing new products.

Other changes have stemmed from better information technology that has cut the costs of investing. In particular, lower mutual fund loads have made it feasible for many households to own diversified stock and bond portfolios. Partly as a result, the share of U.S. households owning stock has risen from less than 25 percent in the early 1960s to about 50 percent by the late 1990s. In these ways, borrowers' and investors' access to capital markets has increased, and this democratization of America's capital markets helped fuel the economic boom of the 1990s, the longest economic expansion on record.

THE DEMOCRATIZATION OF SMALL FIRMS' ACCESS TO CAPITAL

The ability of firms to finance start-ups and expansions has greatly improved. Traditionally, entrepreneurs financed a start-up from their savings or from capital provided by a few wealthy investors. After establishing a track record, a successful start-up could borrow from banks and, with further success, issue stocks and bonds to fund investments. The very best could even issue commercial paper to fund working capital (Prowse 1996). These traditional patterns have changed since the late 1970s owing to the rise of the high-yield, or "junk," bond market and of venture capital.

The High-Yield Bond Market

Before the 1980s, only large, well-established corporations issued bonds, typically bought by large institutional investors (for example, pension funds and life insurance companies) that were primarily interested in bonds from the most reputable and solid companies. Indeed, many institutional investors face legal or fiduciary constraints on whether and how much they can invest in below-investment-grade bonds. Mid-sized firms generally were seen as having below-investment-grade credentials. Many bond investors viewed them as lacking creditworthiness because information on such firms was limited

and difficult to collect and analyze. Also, below-investment-grade, or junk, bonds lacked a track record with which to assess their risk. Many low-grade bonds in that era were issued by firms whose credit ratings subsequently fell because of unexpected bad outcomes. As a result, to fund investments, a mid-sized firm usually borrowed from one bank, which, as the only longer-term creditor, could spread out the fixed costs of monitoring all the debt issued to the firm, thus keeping the financing costs down.¹

In the 1980s, three factors enabled mid-sized firms to issue bonds and shift away from bank loans. One was the development of the high-yield bond market fostered by a few pioneering investment banks that invested heavily in new junk issues from a select group of mid-sized firms (Loeys 1986). Prior to this, most junk bonds reflected the downgrading of bonds that had been investment-grade when issued. As the market gained experience with new junk issues, their risks became better known and the bonds became more acceptable to investors.

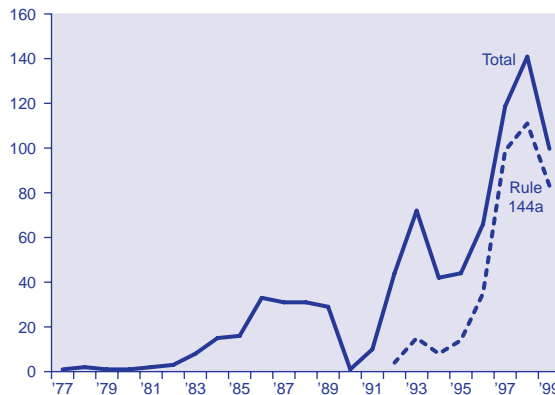
A second factor was a surge in mergers financed with bonds (leveraged buyouts or LBOs). This rise stemmed from fewer regulatory barriers to mergers, a greater need for consolidation among domestic firms because of more globalized markets, and improved economies of scale in back-office operations from lower computing costs. Corporate governance also shifted as investors increasingly demanded that firms cut costs and unlock value by divesting noncore lines of business. The growing demand for merger financing spilled over into the junk bond market because most merger-related issues had large debt payments relative to the acquiring firm's cash flow. In turn, the increase in the junk market's potential size spurred financial firms to expand their capacity to issue and market junk debt. As a result, the merger wave of the 1980s created a deepening of this market (Loeys 1986 and Beckett 1990, p. 49).

A third boost to junk bonds came from improved technology and analytical tools that help investors obtain information about mid-sized firms and buy bonds at a lower cost. As a result, information and transaction costs were lowered, fostering junk bond issuance during the economic expansion of the 1980s (Loeys 1986, p.11).

In the 1990s expansion, junk bond financing of mergers fell out of favor for two reasons. First, many LBO bonds ran into trouble during the 1990–91 recession. Second, the 1990s stock market boom enabled firms to use stock instead of debt to finance mergers. Nevertheless, the

Figure 1
Global Issuance of Below-Investment-Grade Bonds, 1977–99

Billions of dollars



SOURCE: Merrill Lynch.

other factors behind the earlier growth of the junk bond market remained. In addition, starting in the early 1990s, Securities and Exchange Commission Rule 144a allowed firms to file a pre-registration form that enabled them to quickly issue privately placed bonds (typically bought by large investors) without the usual registration and disclosure delays of traditional bond registration. As noted by Fenn (2000), although many firms subsequently register 144a bonds, they avoid the cost and uncertainty of delaying bond issuance. He also points out that many higher risk firms find Rule 144a issuance attractive not only to avoid delays but also because many of them could not meet the registration requirements of traditionally issued bonds. Issuance of 144a bonds surged in the late 1990s (Figure 1), especially for below-investment-grade firms for whom issuance delays can be costly.

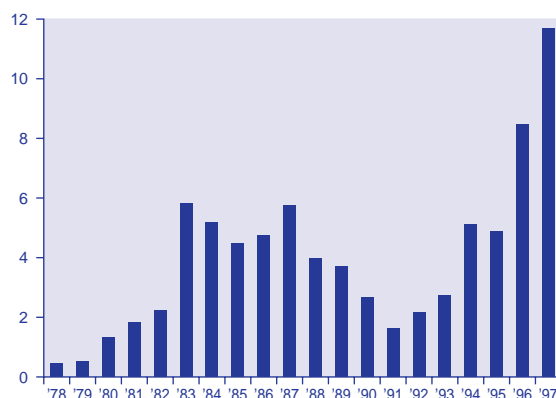
The Rise of Venture Capital

Firms' ability to raise start-up funding has improved greatly since the late 1970s (Figure 2). One reason is the impact of regulatory changes allowing pension funds and other institutions to make venture capital investments through limited liability partnerships, which overcome important hurdles to providing capital to new firms. The development of the Nasdaq stock market also aided venture capital by making it easier for firms to issue stock. In addition, new information technologies have opened up many opportunities for creating new products.

Limited Liability Partnerships, IPOs, and the Nasdaq. Before the 1980s it was extremely difficult for institutional investors to fund start-ups. Pension funds were limited by legal and fidu-

Figure 2
Venture Capital Disbursements, 1978–97

Billions of 1997 dollars



SOURCE: Statistical Abstract of the United States.

ciary constraints to investing in only investment-grade bonds and in stocks of well-established corporations. Other investors faced information-related hurdles such as imperfect information about how a new firm will fair. Will the firm use start-up funding poorly, or take desperate gambles if it encounters trouble, or even defraud investors? Gathering information on such questions is expensive. To recoup these fixed costs, an investor must either demand a high return that the firm may be unable to pay or take a big stake in that firm that limits the ability to diversify against firm-specific risk. For these reasons, outside seed capital came mainly from small groups of wealthy individuals who often shared information with one another.

Even if entrepreneurs surmounted this limited base for start-up capital, their options for financing working capital or new investments were largely limited to internal cash flow, trade credit, and bank loans. A bank, in contrast to many securities investors, can spread the fixed costs of monitoring and evaluating a firm over a larger amount of debt. This enables the bank to charge an affordable loan rate and monitor and limit the firm's risk-taking.

The ability of banks to perform this delegated monitor role was impaired during the 1970s, when high inflation pushed market interest rates above deposit rate ceilings. In response, households withdrew bank deposits to invest in market securities, and banks had to curtail lending. Particularly hard hit were smaller firms, which, unlike large companies, lacked the reputation needed to issue bonds or commercial paper. Between this rationing of bank credit and the limited base for seed capital, a lack of financing became a major impediment to small busi-

ness formation. This spurred a series of deregulatory moves, including one allowing institutional investors to form partnerships that could invest in several start-up firms and receive the benefits of being delegated monitors.

These limited liability partnerships (LLPs) are joint ventures of several investors who pick a management team to select which start-ups to finance and monitor. The LLP reaps the cost advantage of a delegated monitor and the diversification gains to investing in a pool of start-ups. To encourage good performance, LLPs give managers a share in the profits. LLPs also discourage managers from taking excessive risk with others' capital by restricting their investment choices and by overseeing them through a board of directors. Other incentives for management include a limited lifetime of the LLP and the potential to manage future LLPs once a good reputation is established.²

When an LLP ends, it redeems the equity in its venture investments. This equity value is enhanced if the firms successfully conduct initial public offerings (IPOs) of stock. The reason is that traded equity can be held by more investors and has more liquidity than private equity. The development of the Nasdaq in the early 1970s improved the prospects for IPOs. The requirements for a firm's shares to be traded are generally easier on the Nasdaq than on the New York (NYSE) and American (AMEX) stock exchanges. In addition, unlike these exchanges, the Nasdaq is all-electronic, which lowers the transaction costs of buying and selling smaller batches of shares in newer or smaller companies. As the Nasdaq made it easier and less costly for firms to arrange IPOs through investment banks, venture capital investing saw boosted returns and volumes in the 1980s and 1990s.

The Role of New Nonfinancial Products. In addition to the above innovations, which have primarily expanded the supply of venture capital, nonfinancial innovations have increased the demand for venture capital and, indirectly, its supply. Advances in computer technology have generated an array of information-related products. Indeed, most of the venture capital surge in the late 1990s was concentrated in sectors that used information innovations to spawn new firms making new types of products (*Figure 3*).

Communications is an example of an industry in which technological progress and deregulation launched new firms. Likewise, the service sector is more open to new entrants, because the Internet facilitated the creation of new business service, retailing and consumer-related service firms (*Figure 3*). Computer advances

and the increased availability of venture capital have also spawned new biotechnology firms. In other industries, information advances created fewer opportunities for new firms. For instance, there is little venture capital financing of Old Economy product firms, as shown in Figure 3.

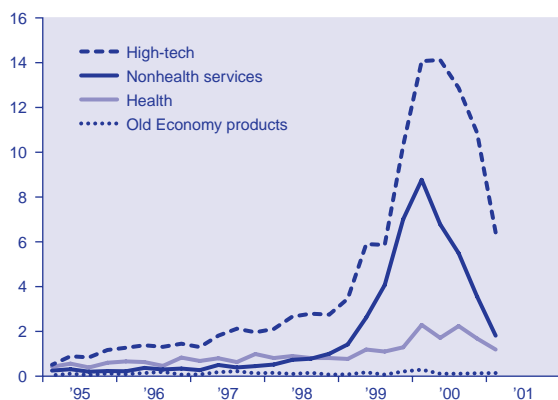
Within the high-tech sector, the volume of venture capital deals for software and networking firms has surged, while that for other types of computer firms has been relatively flat. This dichotomy fits with the general pattern of strong venture capital growth in new industries and less growth in industries dominated by established firms.

THE DEMOCRATIZATION OF HOUSEHOLD INVESTORS' ACCESS TO CAPITAL MARKETS

Between the mid-1970s and late 1990s, household portfolios changed greatly as the share of household financial assets in bank deposits fell, while that in mutual funds and securities jumped from 22 percent in 1975 to 42 percent in 1999. To a large extent, this shift stemmed from several innovations that lowered the cost of investing and broadened the menu of investments. These include the rise of money market mutual funds, the advent of Individual Retirement Accounts (IRAs), and declines in transaction costs.

Figure 3
Venture Capital Surges in High-Tech and Nonhealth Services, 1995–2001

Billions of dollars



NOTES: High-tech includes communications, other information technology, semiconductors, and software. Nonhealth services include consumer/business services and retail. Health includes biopharmaceuticals, healthcare services, medical devices, and medical information systems. Old Economy products include consumer/business and industrial products.

SOURCES: PricewaterhouseCooper's MoneyTree Survey (in conjunction with VentureOne) and author's groupings of the survey's categories.

The Rise of Money Funds and Money Market Deposit Accounts

In the early post-World War II era, there were regulatory ceilings on bank deposit rates. In periods of high inflation and high market interest rates, these ceilings were binding and many households earned below market interest rates on deposits. As high market interest rates became more persistent in the 1970s, some households withdrew their funds from banks and bought Treasury securities. With loanable funds shrinking, banks restricted lending and encouraged their larger, more established commercial borrowers to issue commercial paper backed by bank lines of credit.³

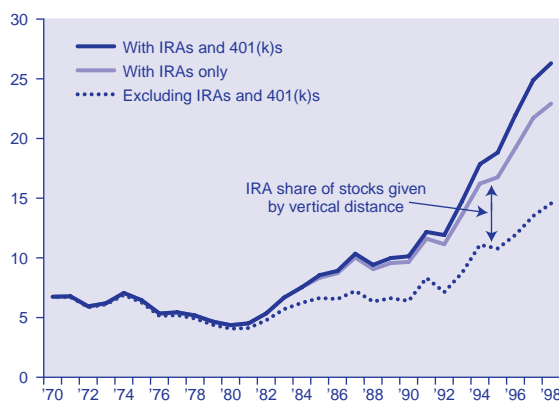
In response, some mutual funds invested in short-term securities (mainly Treasury bills and commercial paper) and offered households mutual fund shares with constant prices but yielding market interest rates and featuring limited checking. In the high-interest period of the late 1970s and early 1980s, these money market mutual funds grew rapidly, while banks and thrifts saw large deposit outflows. This led regulators to allow depositories to offer a new instrument—money market deposit accounts—that, like money funds, offered market interest rates and limited checking. Also, deposit rate ceilings ended in the early 1980s (Mahoney et al. 1987). These changes made it easier for households to invest in short-term money market instruments.

The Advent of Individual Retirement Accounts

Starting in the early 1980s, Americans were able to deposit up to \$2,000 annually in IRAs. The annual investments were tax deductible and the principal and earnings not taxed until withdrawn, presumably during retirement, when taxpayers would likely be in lower income-tax brackets. Since the mid-1980s, Congress has altered the eligibility and annual contribution provisions of traditional IRAs and has created new types of IRAs, such as the Roth IRA. The ability to compound investment returns tax-free until withdrawal for all types of IRAs and the deductibility of initial investments in traditional IRAs encouraged many wealthy Americans to shift existing assets into tax-preferred IRA accounts.

The advent of IRAs had four important effects. First, the eligibility requirements encouraged people to use third parties, such as mutual funds, to manage IRA assets and induced many families to shift from directly held stocks and bonds to indirect holdings through mutual funds (Figure 4). Second, the rise of defined-contri-

Figure 4
Households' Rising Reliance on Mutual Funds to Own Equity, 1970–98
(Equity fund assets as a share of household equity assets)
 Percent



SOURCES: *Flow of Funds*, Federal Reserve Board; Investment Company Institute; Duca (2001b).

bution pension plans encouraged many people to incur the one-time costs of learning about investing, which prompted many to shift their nonretirement assets into mutual funds as well. A third stimulus to non-IRA mutual fund assets arose from the minimum balance requirements of mutual funds, toward which both IRA and non-IRA assets often count. Fourth, IRAs have enabled many who switch jobs to accumulate assets, whereas previously, job switchers lost pension assets held in defined-benefit plans that favored long-time employees.

Declines in Asset Transaction Costs

Declines in transaction costs have taken three forms: falling mutual fund loads, declining brokerage fees, and lower cost exchange-traded funds.

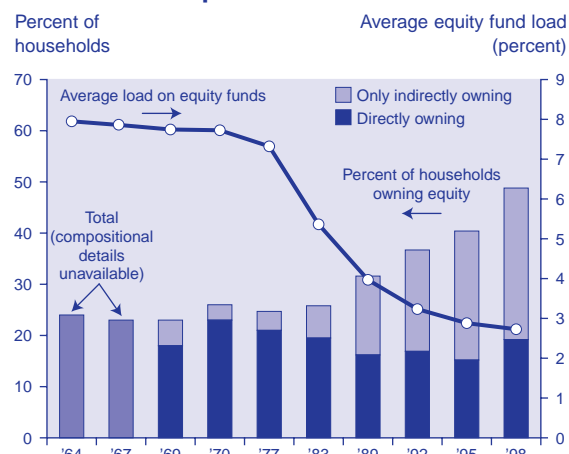
The Falling Costs of Investing in Mutual Funds.

One of the more dramatic changes affecting household portfolios is the large decline in mutual fund costs, which may have spurred many middle-income families to begin investing in stocks. This possibility accords with the impact of lower transaction costs in portfolio choice models of Heaton and Lucas (2000) and Saito (1995). In these dynamic optimization models, utility functions characterized by habit formation imply that transaction costs can deter many families from investing in stocks. These papers tweak the conventional intertemporal framework by assuming that people's utility reflects not the sum of how they value consumption in separate periods but rather reflects

that they get used to a certain standard of living from which they do not wish to deviate. Effectively, this assumption of "habit formation" makes near-term consumption more important relative to future consumption. As a result, transaction costs affect portfolio decisions. In calibration exercises, a decline in transaction costs can induce a large rise in equity participation. Theoretically, transaction fees have also been shown in other models to be barriers to entry, especially under uncertainty, as described by Dixit (1989).

Because of their limited wealth, many families are more apt to acquire a diversified stock portfolio by buying mutual fund shares rather than by directly buying stocks. For these families, the relevant transaction costs for investing in stocks are mutual fund fees, and if these fees fall, stock ownership rates should rise. This is consistent with Figure 5, which shows large increases in overall stock ownership rates accompanying large declines in equity mutual fund costs (see Duca 2000 and 2001a).⁴ In addition, detailed data reveal that most of the rise in overall equity ownership occurred in indirect forms and that indirect ownership is also negatively correlated with equity fund loads. Furthermore, other data imply that the rise of indirect ownership primarily occurred through increased mutual fund ownership. The much higher fees of the 1970s and early 1980s may thus account for many households' relatively greater resistance to owning stocks before the late 1990s (Aiyagari and Gertler 1991, and Haliassos and Bertaut 1995).⁵

Figure 5
Equity Fund Loads Fall and Stock Ownership Rates Rise



SOURCES: Survey of Consumer Finances; Duca (2001a, 2001b).

In a related study using nearly three decades of time series data, Duca (2001b) finds that lower mutual fund loads and greater confidence in the future have boosted the relative use of mutual funds as a way of owning equity. He measures the relative reliance on mutual funds with equity fund assets as a share of all stocks owned by households. He argues that lower fund fees spur some shareholders to shift some assets from directly owned shares to mutual funds. Also, the lower fees induce initial stock ownership by households that are more apt to hold shares in mutual funds for reasons related to limited wealth and portfolio diversification. Recent calibration models of and empirical evidence on household portfolio behavior together suggest that falling mutual fund costs have boosted equity ownership rates in the United States.

The Decreasing Costs of Trading Stocks.

Before 1974, the costs of trading stocks on the NYSE were fixed to prevent price competition among brokers. This placed small investors at a disadvantage because there were discounts for trades of large blocks of stock. Price competition was allowed for small trades on the NYSE beginning in April 1974 and on all trades after April 1975. These steps helped drive down brokerage costs. Although continuous data are unavailable, partial data from Schaefer (1997, p. 13) show that broker fees fell just after deregulation. Since the early 1980s, the rise of discount brokers has likely pushed costs down further, giving investors the option of buying or selling securities without professional advice. The Internet has aided such low-cost investing by partially substituting for broker services. Indeed, some old-line brokerage firms now offer the option of buying or selling stocks without a broker. While traditional broker services are still important, direct investors in stocks now can choose from a menu of services.

One interesting *nondevelopment* is that the proportion of American households that directly own stock has not increased despite declines in the fees of buying and selling stocks. One reason is that the limited wealth of many Americans does not permit them to easily buy and maintain a diversified portfolio of directly held stocks. As a result, declining fees have likely benefited wealthy households.

The Advent of Exchange-Traded Funds. Since December 1998, a new type of stock has traded on the American Exchange. Exchange-traded funds (ETFs) offer the diversification of index mutual funds at a lower cost. The first ETF duplicated the stocks in the S&P 500, thus the

name Standard & Poor's Depository Receipts, or SPDRs. Mirroring the name abbreviation, shares in this ETF are called spiders. Nine other S&P-based ETFs (Select Sector SPDRs) have been created that replicate the subcomponents of the S&P 500.⁶ Other ETFs now include World Equity Benchmark Series (WEBS), which duplicate indexes of foreign stocks, and Diamonds, which are based on the Dow Jones industrial average.

How do ETFs compare with index mutual funds? ETFs are continuously traded, unlike mutual fund shares, which can be bought or sold once a day. Like index mutual funds, ETFs buy and sell securities to match changes in the composition of the stock index they mirror. As a result, they have low costs like index mutual funds and are arguably a close substitute (for further discussion, see Malkiel 2000).

While ETFs compete with index mutual funds, a new investing service offers a substitute for actively managed mutual funds. In particular, some web-based companies offer investors customized stock portfolios at costs that, for investments of at least \$30,000, are purportedly below the expenses of purchasing actively managed mutual funds (McGeehan 2000). These kinds of services, along with ETFs, broker innovations, and the potential for further declines in mutual fund costs, will likely continue to reduce household investors' transaction and asset management costs.

IMPLICATIONS

The increased openness, or democratization, of U.S. capital markets means that households have a wider array of investment choices and small businesses have more sources of capital. For example, more households can feasibly invest in stocks, and more small firms have access to venture capital. In addition, better diversification in their investment menus offers protection from disruptions in particular markets. This article focuses on two implications of the democratization of U.S. capital markets: the possible impact of more households being exposed to stock market swings and the possible increased sensitivity of small and expanding businesses to fluctuations in securities markets.

A Possible Rise in the Sensitivity of Consumption to Stock Wealth

According to many theoretical models, rising stock wealth boosts consumption by raising the permanent or life-cycle income of households (see Ando and Modigliani 1963, and Friedman 1957). Stock market wealth has a role in

Figure 6
**Wealth Gains Associated with a
 Lower Personal Savings Rate**



SOURCES: National Income and Product Accounts; *Flow of Funds*, Federal Reserve Board.

many econometric models of consumption based on the permanent income and life-cycle hypotheses (Board of Governors of the Federal Reserve System 1999, Bosworth 1975, Brayton and Tinsley 1996, and Mishkin 1977) and in models deviating from the life-cycle hypothesis. One example of the latter is Carroll's (1992) buffer stock model, in which utility-maximizing households alter their savings to hit a target wealth-to-income ratio. This implication is consistent with the recent fall in the personal savings rate and jump in the wealth-to-income ratio (see Board of Governors of the Federal Reserve System 2000 and Figure 6).

One concern about the importance of stock market wealth is that stock ownership is concentrated among the very rich, whose consumption is probably not affected much by swings in stock prices. Indeed, some studies find that the savings behavior of the rich differs greatly from that of the general populace (Carroll 2000a, 2000b and Dynan, Skinner, and Zeldes 2000). In particular, evidence reveals that the rich save partly to acquire and preserve (primarily through bequests) power and status (Carroll 2000b). These concerns imply that the stock market wealth effect will be very limited.

Nevertheless, rising stock ownership rates suggest that an increasing share of households, whose consumption is affected by wealth, is exposed to the stock market. Unfortunately, equity participation rate data are unavailable to directly test whether stock market wealth effects have become more important as stock ownership has become more widespread. However, equity fund

loads appear to be a good instrument for equity participation. (This is suggested by Figure 5.) Taking this tack, Duca (2001a) adds the product of loads and the log of stock wealth as a separate variable to consumption regressions containing standard wealth variables to test whether loads affect the stock wealth elasticity of consumption.⁷ If such interactive terms have negative signs, this is evidence that falling loads boost the impact of stock wealth on consumption by inducing more of the population to own equities. Using this approach, Duca (2001a) finds that the overall stock market wealth effect has grown in magnitude as equity mutual fund costs have fallen. His estimates indicate that a 100 percent rise in stock wealth is associated with a 3 percent increase in annual consumption in the late 1990s, up from about 1.5 percent in the mid-1960s. He also finds that estimates of stock market wealth coefficients vary less in rolling regressions that account for the time-varying effect of equity loads on wealth effects. As with all relatively new research, readers should view these results as providing some support for a hypothesis rather than conclusive proof.

Is Small Business Finance More Sensitive to Securities Market Fluctuations?

Evidence suggests that innovations have increased the availability of financing for small and expanding firms. This, however, makes financing for such firms more subject to swings in financial market conditions. For example, if the venture capital market should dry up, small or new business financing would contract. Even in such a case, small firms might still be able to borrow from banks, an option they had before the advent of the venture capital market. For this reason, while innovations could make the volume of financing more sensitive to financial market swings, they likely have boosted the absolute levels of such financing.

How sensitive to financial markets is the availability of financing for small or expanding firms? From the short history of venture capital, Gompers and Lerner (1999) find that when stock market prices fall substantially, the IPO market tends to shrink for a while, as it did in the late 1980s and early 1990s. In turn, the decline in the near-term prospects of making a successful IPO will likely reduce the expected returns to investing in LLPs, which generally have five- to ten-year lives. Consistent with this hypothesis, Gompers and Lerner find that a downturn in the IPO market is associated with a decline in the volume of new venture capital investments.

As with the IPO and venture capital markets, there is evidence that riskier firms' ability to issue high-yield bonds is more sensitive to financial market conditions than is that of better established firms. Indeed, the spreads of junk bond yields over Aaa-rated (the highest grade of corporate bond) yields jumped much more than did the spread between Baa- and Aaa-rated bonds during the 1990-91 recession.⁸ (Baa-rated bonds are the lowest grade of investment-grade bonds in which banks and most institutional investors are able or willing to invest.) Mirroring this jump in junk bond default spreads was a relative rise in the default rates on junk versus investment-grade bonds.

A decline in securities market conditions can curtail the availability of high-yield bond or venture capital financing for small and expanding firms in two ways. Reduced expectations about the future economy will push stock prices and investment down even without any feedback between them. These effects are typically more pronounced for less established firms whose investment prospects are more sensitive to risk. Also, a drop in stock prices may increase investors' risk aversion, which may especially boost the premiums on riskier investments, such as high-yield bonds, IPOs, and venture capital. This feedback effect from a declining economic outlook further reduces the availability of small and start-up business credit. Banks, however, may partly offset such effects by lending more to the affected firms. In late 1998 and early 1999, financial market disruptions drove many large and mid-sized firms away from the bond and commercial paper markets to banks, where they had lines of credit. While smaller firms tend to have less access to such lines, some would be able to borrow from banks, which, during periods of high risk, can more closely monitor new credit extensions than can open markets.

However, banks would likely be less willing to compensate for a dearth of financing for start-up firms that lack credit and commercial histories. In addition, the end of Regulation Q has stabilized the availability of bank loans, while credit scoring and other less expensive ways of lending have helped banks lower their costs to make small business loans. On balance, the availability and stability of bank financing have likely increased, while the long-run availability of volatile short-run sources of start-up financing, such as venture capital, has also increased. In general, the availability of financing has risen for firms, but the nature of short-run fluctuations in availability has changed.

CONCLUSION

In the last quarter of the twentieth century, deregulation and technological advances spawned several financial changes that have increased the access of small investors and firms to U.S. capital markets. For households, these innovations have widened investment choices, particularly for stocks and nonbank interest-bearing assets. For less established firms, these changes first made junk bonds a viable source of capital; later innovations made venture capital increasingly available. The benefits of this democratization of America's capital markets have spurred other developed nations, particularly in Europe, to bolster venture capital and increase their citizens' access to mutual funds and other financial products.

NOTES

I thank Robert D. McTeer, Jr., for suggesting the article's topic; Jeff Gunther, Mark Wynne, and an anonymous referee for offering helpful suggestions; and Daniel Wolk for providing excellent research assistance. I also thank Stephen Prowse for extensive discussions about the private equity market. Any errors are my own.

- ¹ See Rosengren (1990) for more discussion of how the rise of the junk bond market opened up the securities markets as a source of finance for less established corporations.
- ² LLPs are one form of private, that is, nontraded, equity. For a more complete discussion of the role of private equity in funding new and existing firms, see Fenn, Liang, and Prowse (1997, 1998) and Prowse (1998).
- ³ See Post (1992) for more on the evolution of the commercial paper market.
- ⁴ Overall ownership includes directly owning individual stocks and indirectly owning stocks through mutual funds and other means. Ownership rates from the Survey of Consumer Finances (SCF) are not fully consistent over time for three reasons. First, pre-1989 SCFs treat all mutual fund assets as indirectly owning stock, but data since 1989 distinguish between bond and equity funds. Second, Federal Reserve statistics treat stock in IRA or 401(k) plans as indirect stock ownership since 1989. Third, some early SCFs treat privately held equity as owning stock, whereas later SCFs do not. 1986 data are omitted because they likely undercount broad stock ownership. This SCF only asked a family if it owned stock or mutual funds, whereas others also asked if households held stock in their employer or in investment clubs. There are also concerns about the quality of the 1986 SCF because it was done by phone, without edit checks of unusual answers. In addition, because the 1986 SCF recontacted 1983 respondents, the 1986 SCF could have

been distorted by selection effects from movers. Ownership rates are the most up-to-date data from Kennickell, Starr-McCluer, and Surette (2000); Katona, Lininger, and Mueller (1968); Katona et al. (1970); Katona, Mandell, and Schmiedeskamp (1971); and Durkin and Elliehausen (1978).

Equity fund load data are from Duca (2001b), who constructs estimates of asset-weighted loads from a sample of large equity mutual funds used by Duca (2000). These estimates are based on data from the funds, IBC/Donoghue, the Investment Company Institute, and Morningstar. Duca's cost estimates, which span 1960–2000, move together with more comprehensive industrywide cost estimates from Rea and Reid (1998) that are available only since 1980.

- ⁵ Although Haliassos and Bertaut (1995) show that investment minimums at mutual funds are too low to explain why most households do not own equity, their findings do not rule out the possibility that mutual fund fees were an important barrier to more widespread stock ownership. This possibility is consistent with the findings of Heaton and Lucas (2000).
- ⁶ "Standard & Poor's Depository Receipts," "SPDRs," and "Select Sector SPDRs" are trademarks of The McGraw-Hill Companies.
- ⁷ This interactive load variable may also track a rise in the liquidity of stock wealth. In particular, by reducing the cost of going in and out of stocks, lower loads could conceivably boost the magnitude of stock wealth on consumption in the short run.
- ⁸ Aside from an increase in downside macroeconomic risk, junk bond spreads were also probably boosted by new regulations that forced many thrift institutions to sell their substantial holdings of junk bonds. By causing an inward shift of the demand for holding junk bonds, these regulations conceivably pushed down junk bond prices and thereby put upward pressure on junk bond yields relative to other corporate yields.

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